

not always found. The stenosis may occupy the entire length of the aqueduct or varying parts. It may even be only a thin transparent membrane. The stricture may be only partial. Strictures of the aqueduct can be diagnosed and accurately localized. The indigo-carmin test will indicate that a stricture is present. By ventriculography the obstruction can be definitely located. Spontaneous relief is not possible. Surgical attempts to drain the fluid from the third ventricle to the exterior of the brain have all proved futile. The openings invariably close and the fluid cannot absorb in the subdural space. He suggests a surgical procedure directed to the cause. A new aqueduct is constructed and a tube is left in place for two or three weeks. This has been done on two cases, both recovering from the operation. One died of pneumonia several weeks later, but the other seems well one year after the operation.

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## OBSTETRICS

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UNDER THE CHAIR OF

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**Treatment of the Severe Vomiting of Early Pregnancy.**—LYNCH (*Jour. Am. Med. Assn.*, August 16, 1919) contributed a paper upon this subject at the meeting of the American Medical Association. He has examined the statistics of various countries to determine the frequency of this condition. Statistics seem to indicate that the severe vomiting of early pregnancy was less frequent in Germany than in America, England, France and Russia. In the writer's experience 58 per cent. of his private patients gave a history of nausea and vomiting in early pregnancy in 45 per cent. of his hospital cases. So far as serious cases are concerned, Carl Brown is credited with the statement that in 150,000 pregnancies he saw no fatal case. Similar statements were made by other German and Austrian obstetricians. The records of death from pernicious vomiting in France and England indicate a higher mortality. In 1914 Bondy reported only 21 cases of pernicious vomiting in 10,000 pregnancies in Breslau. He quotes similar statistics in two German clinics. In 2750 clinic cases at the University of California Hospital 14 were admitted for the treatment of pernicious vomiting of early pregnancy. The writer believes that in some way in these cases the maternal organism is sensitized to vomiting while in a state of pregnancy. He does not explain what is meant by this statement, nor does he mention the absorption of syncytium, which to many obstetricians is a rational explanation of this condition. Possibly these two causes may be related and frequently appear in common. In the pathology of the condition the changes in the liver are clearly recognized. Milder cases dying of some other condition show little more than the cloudy swelling of the parenchyma of the liver. All fatal cases, or nearly all fatal cases, show decided structural change varying from simple fatty

degeneration to acute yellow atrophy. In the most marked type there are degenerative changes about the central vein of the lobule tending toward its periphery. Clinically these cases have been divided into reflex, neurotic or toxic. But the clinical classification should depend upon the pathology, and this would indicate that severe cases are toxic and that the toxemia gives its most evident manifestation in changes in the liver. The writer believes that it is problematic whether the pathological picture presented in the liver of those who die from serious vomiting of pregnancy represents the various stages of the same disease. While the writer believes that American obstetricians do wisely in promptly terminating pregnancy when medicinal treatment fails, yet he does not share the opinion of Turnier and Boudin that the disease does not tend to recur in subsequent pregnancies. He has observed numerous cases in which after the first toxemia of pregnancy others have been complicated in the same way. Recognizing the importance of ammonia in the urine as indicating a pathological condition, the writer believes that this is influenced profoundly by the type of diet and by medication and by other factors. He does not consider ammonia as probably an index of the functions of the liver, but states that the fact remains that it is increased in the condition of acidosis and serves the purpose of saving alkali for the body. His observations have shown him that in more serious cases there is an increase in urinary ammonia. He believes it better to state that ammonia nitrogen in terms of absolute amounts, since without this control the ammonia coefficient may be misleading. The coefficient is a proportion of the total urinary nitrogen that presents as ammonia. If the absolute amount of ammonia remains stationary the coefficient will decrease with the increase of total nitrogen and will increase with the fall of total nitrogen. This has been shown by Folin in studying the variations seen in health. If the total nitrogen remains stationary and the ammonia increases in amount the ammonia coefficient increases, thus resembling the curve of increase of ammonia by weight. This condition he states is infrequently seen in the severe types of vomiting. These patients are put upon restricted diet and so the total nitrogen in the urine comes largely from the breaking down of body tissues. Early in starvation the loss of weight depends greatly upon loss of fats as the fatty acids are oxidized largely by the glycogen stored in the liver. It is natural to find variations in the partitions of the urinary nitrogen in fat and thin subjects dependent in turn upon the relative importance of carbohydrates stored in the body suitable for oxygenization of the resulting fatty acids. Undoubtedly the character of the food last taken may influence the condition. The writer has studied the acid of the blood in normal pregnancy and finds that there commonly exists in normal pregnancy an acidosis shown by the tension of the carbon dioxide of the blood, although the blood readings in the majority of his vomiting series fall within the same range as cases considered clinically as normal. In studying the urinary ammonia in early pregnancy the writer states that he has never seen a patient, as judged by clinical means, in danger of life in whose urine ammonia was in normal limits. The fact that high ammonia is occasionally seen in cases that do not give symptoms of marked toxicity does not impair the truth of the general statement, since the loss of fatty tissues, the glycogen content of the liver and

muscles, the character of the food retained, the type of medication employed all constitute factors that must be considered in a given case. It has been suggested that this increased ammonia is caused merely by the acidosis of starvation. While it is evident that cases of pernicious vomiting are starving, one cannot believe that starvation is responsible for the entire condition. The variations in anemia seen in pernicious vomiting of early pregnancy greatly exceed those found in cases of starvation. A starving patient after taking food has the ammonia fall very rapidly, and individuals subjected to experimental starvation are able to be up and about. On the contrary, patients in early pregnancy with pernicious nausea have been in bed for some time, and some of them have retained some food by mouth and have received glucose by the blood or by the rectum. The total nitrogen in a woman with the pernicious nausea of gestation often falls below that encountered in any case of starvation. We must admit the existence of acidosis in pregnancy, but the tension of the carbon dioxide in the blood in the cases of pernicious nausea does not exceed that of normal cases in which there is no pernicious nausea. The writer believes that the decision lies in the clinical behavior of the patient. After abortion the conditions often return to normal with the cure of the vomiting, while many others succeed in bringing about this result by proper treatment with the preservation of pregnancy. In the simple cases there is usually an excess of acid in the stomach. Patients are relieved temporarily by taking food and the mouth is acid when tested by litmus. Constipation is almost invariably present. The writer recognizes three periods in the day in which vomiting is liable to occur: (1) in the early morning; (2) late in the afternoon; (3) shortly before noon. Many patients show vomiting in all three. Motor neuroses are very common in these cases. The patient is usually worse in the morning because of the long fast during the night, although the stomach usually empties itself in a normal manner during the night, so that the matter vomited in the morning is chiefly acid mucus. Vomiting may also occur immediately after taking food. The nausea in the late afternoon very commonly follows a bad luncheon, while those patients whose usual breakfast is coffee and rolls often have a wave of nausea about 11 in the morning. Some of the most obstinate cases, however, occur in those in whom the acidity is less than normal. In the management of these cases the writer urges a careful study of the gastric secretions and of all matter ejected. He believes in the importance of nervous reflexes, and posterior displacements of the uterus should be corrected and the uterus held in normal position by pessaries, although the writer states that he has never seen relief follow such treatment alone. The care of the bowels is exceedingly important and may be a matter of much difficulty. But few drugs should be used. Rest, ventilation, hygiene and proper clothing are all important. That vomiting may be a nervous habit entirely is the belief of the writer. Hence the importance of trying to break the habit by selecting the type of food most easy to digest and difficult to vomit. Absolute rest and quiet are of the greatest importance. Hospital care is best and patients are usually relieved in about ten days. The writer's cases are put to bed and food and drink by mouth stopped until there has been no vomiting for twenty-four hours; the bowels are kept open by Bailey high colonic flushing; 40 to 60 grains of brouide are given by the bowel every four hours; 8 to 10 ounces of glucose and

soda are given by the rectum at fixed intervals. The patient should be assured that when the first meal is given she will be able to retain it, and she is strongly urged not to form the habit of vomiting. In selecting food fruits or sweets are to be avoided. The meal should be of solid food. While there is excess of acid a diet of proteins, limited fats and restricted carbohydrates is best. A deficiency of carbohydrates is supplied by the glucose given by the bowel, while the sodium bicarbonate neutralizes the acidosis. A diet of meats, fresh toasted bread and butter, a small amount of milk and cream is especially useful. Four meals of such food should be taken in twenty-four hours. Fluid may be withheld by mouth for many days and until the diet has been extended to include vegetables. Then the meals may be solid and fluid in alternation in small quantities and at frequent intervals. Usually broiled steak, roast beef and slightly cooked scraped beef are best, and must be used for several days. If this can be done the diet may be enlarged. When the case is of the subacid type it is more difficult to manage and the diet must be enlarged and fewer meats used. As the patient improves the bromides are reduced and soda and magnesia are given in capsules by mouth during digestion. The writer has found ingluvion of value in some cases. The writer is strongly convinced that food should be solid, frequent and in small quantities. Liquid foods he believes are very easily vomited. He believes that patients crave acid drinks, but that this craving can often be satisfied by a mouth wash containing acid. It is difficult to manage these patients without good nursing, and the nurse must strictly follow the physician's orders. If the case is of a fulminating type or if black vomit occurs pregnancy should be interrupted at once. Very often it is too late when these symptoms manifest themselves. The writer states that we do not know a safe limit for the urinary ammonia. There is a close parallel, he believes, between the ammonia excretion of pernicious nausea of pregnancy and that seen in diabetes. He has used Ringer's solution with excellent results, given alternately with the glucose-soda solution. He has tried injections of normal pregnant serum, but without result. Corpus luteum and epinephrin have been of no value. If the acidosis is not influenced by treatment and symptoms continue severe abortion is indicated. When marked acidosis is absent the prognosis is more favorable. In making the prognosis the study of the urinary ammonia is of value. The newer methods of Folin and Van Slyke can be carried out by hospital interns and titrations with formaldehyde solution are sufficiently accurate for clinical purposes and comparatively easy to carry out. The method of abortion is important because the anesthesia sometimes creates great danger. Chloroform should never be used in any case in which it would appear that the liver has used up most of its glycogen. Chloroform causes serious damage to the liver, already the seat of a pathological process. Ether produces acidosis and adds to the vomiting. Anesthesia with nitrous oxide and oxygen enough given to complete anesthesia are indicated. If the fetus cannot be removed with the dilatation obtained by the solid dilator, vaginal hysterotomy may be indicated, especially if the cervix is long and high. The lessened resistance of the patient to infection must not be forgotten. The use of bags and packing often aggravate the symptoms. The bladder should not be invaded if infection and pyelitis are readily developed.

## GYNECOLOGY

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**Conservatism in Pelvic Inflammatory Disease.**—Based upon an experience with 120 patients upon whom he has performed wedge excision of the fundus uteri in the treatment of inflammatory disease, SCHMID (*Arch. f. Gyn.*, 1920, exiii, 164) summarizes his views upon the treatment of pelvic inflammatory disease as carried out in the gynecologic clinic at Prag. In the acute stage, the cases are treated conservatively in order that the diffuse peritonitis may have a chance to localize and possibly completely disappear. In the chronic stage, simple conservative measures will, in three-fourths of the cases bring about complete restoration or at least sufficient improvement so that the patient may resume her usual occupation. Minor operations on the adnexa can then be performed, such as release of adhesions, removal of one tube or the adnexa of one side followed by salpingostomy on the other side if the remaining tube is healthy or shows only minor changes. In severe disease of both sides in which the retention of one ovary is precluded, and in women over forty years with moderate bilateral disease, a radical operation should be done by the abdominal route. In cases of bilateral inflammatory disease in which at least one ovary can be conserved, if the patient is in the child-bearing age, both tubes and the more seriously diseased ovary together with a wedge-shaped portion of the fundus uteri should be removed while the less diseased ovary or at least a portion of it should be allowed to remain. This fundus excision, which has recently been advocated in this country by Polak and known as the Bell-Beutner operation, gives no higher mortality than the more conservative operations and has a lower mortality than the radical vaginal or abdominal operations. With proper technique it gives a subjective as well as objective satisfactory end-result in 83 per cent. of the cases with freedom from menopausal symptoms as well as the psychic shock of amenorrhea and with relief from pain and a complete restoration of the patient to her usual occupation.

**Differential Diagnosis of Tumors by Means of Roentgen Ray.**—By showing the manner in which neoplasms react to roentgen radiation, SEITZ and WINTZ (*Munch. Med. Wchnschr.*, 1920, lxxvii, 653) believe that they have found a means of differentiating benign from malignant tumors. After roentgen radiation, if the tumor begins to show regression in a few days and has more or less completely disappeared after four or five weeks, it is probably a sarcoma. If, on the other hand, the regression

of the tumor after radiation first appears after three or four months and continues very slowly, consuming one to two years for complete disappearance, it is a myoma in all probability. The diminution in the size of the myoma is a secondary effect and is due to ovarian influence. The young cells of malignant tumors are much more sensitive to the roentgen rays than are the mature cells of benign neoplasms and thus roentgen-ray treatment often assists in making a differential diagnosis between benign and malignant tumors. For example, a lymphosarcoma regresses very quickly under radiation, while a tuberculous glandular swelling disappears very slowly. Similarly in the differential diagnosis between carcinoma and sarcoma the roentgen ray may be of assistance. Large ovarian and abdominal sarcomata regress quickly after radiation while carcinoma reacts very slowly unless a carcinoma dosage is given, which of course is much larger than the ordinary dosage.

**Operation for Pruritus of Anus and Vulva.**—The operative treatment proposed by ALLEN (*New Orleans Med. and Surg. Jour.*, 1920, lxxiii, 127) has in view the separation of the skin from the underlying tissue thus dividing all the nerves which reach the affected parts, rendering them anesthetic, and preventing the skin from immediately healing to the underlying tissues by packing, which is kept up until a firm bed of granulation has formed, which usually requires about one week, when the packing is discontinued and the skin allowed to fall back in place where it soon is again firmly united, leaving an anesthetic area which nearly equals the extent of the undermined area. This anesthetic area is not complained of but is usually a quite welcome change. It gradually diminishes in size with the return of normal sensation after a few months and has in Allen's experience not been followed by a return of the pruritus. The operation upon the anal region is the simpler. The area involved must first be accurately determined. It is usually quite symmetrical and uniform on both sides. A series of incisions are now made beginning at the anal margin and continued outward to about one-half inch beyond the affected area, which is rarely more than two inches. A series of these incisions are made about one inch apart at the peripheral extremity until the entire perineal region has been covered. These skin strips are now dissected up, preferably with a scalpel, except at their two ends which are left attached. In separating the skin from the subcutaneous tissues but a small margin of tissue is left attached to its under surface to insure a sufficient circulation to prevent sloughing. As the pruritic area rarely involves the mucous surfaces the incisions need not invade them, and in a few cases where the vaginal mucosa seemed to have been involved it cleared up with the relief of the external parts. The operation upon the vaginal outlet is performed in the same general way as upon the anal region and should need no special description. After dissecting up the skin flaps the space beneath is packed with iodoform gauze. Frequent sitz baths with a liberal supply of soap has always been insisted upon as an after-treatment. They keep the parts cleansed and are more effective and comfortable than irrigations. The packs may occasionally need changing but often remain the full time, about one week. After the packs are removed the parts quickly unite. The total disability is about two weeks.

**Treatment of Inoperable Cancer with Selenium.**—The attempt to eradicate malignant disease by injection into the blood stream is of recent origin. The pathogenesis of cancer is as yet unknown, but it has long been our hope to discover some preparation that would cause the destruction of the proliferating cells, whether this proliferation be the entire morbid process or merely the manifest termination of other hypothetical local changes. It having been observed, however, that cancerous tissue possesses the property of concentrating in itself the mercury given for the treatment of syphilis, experiments have been conducted to discover if other elements might not likewise be selected with this object in view; for it appeared possible that, if it were so, a protoplasmic poison might be given in doses which, though small enough not to injure the patient, might yet become sufficiently concentrated in the cancerous cells to effect their destruction. It was found that a large number of elements, chiefly metals and metalloids, showed this affinity to greater or less degree. WATSON-WILLIAMS (*British Jour. Surg.*, 1920, viii, 50) has been working along these lines with selenium. He states that the treatment appears to be suitable for two classes of patients. In inoperable cases, the results obtained compare favorably with any known method of attacking the growth by the blood stream, and are approximately equal to those of radiotherapy. The moderate focal reaction is in no way comparable to the local reaction from radium: the preparation appears to be considerably more active than copper. All malignant tissue is affected, however inaccessible. As a purely palliative treatment, the drying of ulcers and abolition of pain is a marked advantage. The injections have the minor advantage of low cost. As an adjunct to operative measures, including diathermy, the treatment may be applied to a variety of conditions. Where operative removal has not been as free as desirable, the possible outlying cells might be destroyed by injections. In patients having a course of injections, wounds in carcinomatous tissue have been observed to heal. Cases pronounced inoperable may give hope of becoming operable when sepsis and fixation have been diminished by this treatment. Possibly malignant processes might be held in check for a few weeks in patients who cannot arrange to submit to an operation at short notice: time is necessary before deciding as to the value of selenium in such cases. The effects following a course of injections are usually well marked. They are gradual in their appearance, and the improvement continues for some time after the injections have ceased. The first effect is noticed by the patient and is a local one, namely, diminution or disappearance of pain. In a favorable case there follows diminution in tenderness, cleansing of ulcerated surfaces, decrease of discharge, granulation, diminution in size and hardness of the tumor and secondary deposits, increased mobility of the part. In the general condition one may note improvement in anemia and cachexia, improved sleep and memory, increase in weight and strength, marked psychic improvement: this is due partly, no doubt, to the feeling that something is being done but is also largely attributable to relief from pain, sleeplessness and the intolerable discomfort of fetid discharges.

**Combined X-ray and Radium Treatment of Uterine Carcinoma.**—It has been the practise of SKINNER (*Amer. Jour. Roentgenology*, 1920, vii, 376) to accept no case for postoperative radiotherapy of a pelvic lesion unless deep x-ray intensive exposures through multiple portals of entry were used in an attempt to control the lymphatic metastasis at the same time that radium was applied to the cervix or uterus. He believes that the results obtained by roentgen therapy alone, before radium came into general use, warrant its continuation. By observation, he has acquired a criterion of prognosis in these cases, which is that cases which exhibit an early tanning of the skin offer the best prognosis. It is realized that tanning is a matter of skin type to a certain extent, and that it could be a matter of dosage and filtration. But when a uniform technic is used daily, he has constantly noted that the cases which tan quickly are doing better than those which do not tan. He is convinced that this is worthy of observation, as variation in technic did not produce tanning in the case that was losing the fight. It is generally acknowledged that the limits of radium activity producing reduction of cancer cells is 2 to 3 cm. which means that radium can have no action upon the pelvic lymphatics and other channels of metastatic progress unless there is an open operation which permits the planting of radium directly to the suspicious tissues or unless a large amount of radium is available to reproduce the effects of cross-fire roentgenization of these tissues. On the other hand, the limits of roentgen therapy are not measured by 2 or 3 cm., and the ability to cross-fire and thus accumulate x-ray tissue effects at any depth is simply a matter of careful and tedious technic. The question of the vulnerability of neoplastic tissue has been followed up in clinical and physiological observation. The cells are destroyed more readily in their lower state of development than in their more adult state. The aim of the postoperative radiations is not merely to destroy any cells which may have been left, but to prevent in the earliest stages the development of recurrences, and with this idea in mind the irradiations should be continued for a length of time at increasing intervals, sufficient to cover the period of probable recurrence.

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## PATHOLOGY AND BACTERIOLOGY

UNDER THE CHARGE OF

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**The Action of Benzol.**—WEISKOTTEN, GIBBS, BOGGS and TEMPLETON (*Jour. Med. Res.*, 1920, xii, 425) report an interesting series of rabbit experiments on the action of benzol. The suggestion for this work was provided by the report of Selling (1910) of a series of cases of benzol poisoning occurring in girls in a factory where the rubber for soldering was held in solution in benzol. The predominating clinical features in these instances were purpura hemorrhagica, anemia and leukopenia.